ARTIFICIAL INTELLIGENCE (AI) FOR EFFECTIVE PUBLIC FINANCIAL MANAGEMENT IN AFRICA

Strengthening Transparency, Efficiency, and Accountability







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Context & Rationale

Fragmented Systems

Disconnected databases across budget, treasury, procurement, payroll, and debt functions create information silos that prevent holistic financial oversight.

Manual Processes

Paper-based approval chains slow service delivery, weaken accountability, and create opportunities for errors and manipulation in financial workflows.

Limited Visibility

Lack of real-time insight into financial commitments and cash positions hampers effective decision-making and fiscal planning across government.

High Leakage Risk

Duplicate payments, ghost workers, procurement irregularities, weak data governance, and cybersecurity gaps expose public finances to significant losses.

Why it matters: These challenges hinder translating budgets into tangible results and erode public trust in government financial management. Strategic opportunity: AI and digital technologies enable connected, risk-aware finance systems that can transform how African governments manage public resources.

Vision for Intelligent PFM ICT Systems

The future of Public Financial Management in Africa lies in building an end-to-end digital, integrated, intelligent ecosystem.

This vision transforms fragmented systems into a unified platform where data flows seamlessly across institutions, transactions are recorded once and used multiple times, and controls are embedded within processes rather than applied afterward.

- This represents a fundamental shift from traditional record-keeping to a learning government one that identifies risks early, provides near real-time decision evidence, and continuously improves through AI-powered insights.
- The journey follows four historical phases: Computerization (replacing paper with electronic records), Automation (digitizing individual functions), Integration (linking core FMIS and related systems), and Intelligence (AI-powered anomaly detection and forecasting).

Seamless Data Flow

Real-time data exchange across all government institutions eliminates silos and enables unified financial visibility across budget, treasury, and procurement.

Embedded Controls

Automated controls built into workflows ensure compliance at every transaction point, reducing manual intervention and strengthening accountability.

AI Intelligence

Advanced analytics and machine learning enable early risk identification, predictive forecasting, and evidence-based decision making.

End-to-End Digitalisation of the PFM Value Chain



Digitalising Public Financial Management requires treating the entire system as one integrated value chain, not isolated projects. From budget preparation through audit oversight, each function must connect seamlessly to enable real-time visibility, embedded controls, and data-driven decision making across government institutions.

Budget & Execution

Scenario modelling, programme budgeting, commitment control, e-payments, and treasury operations with automated posting, reconciliation, and real-time dashboards.

Procurement & Payroll

E-tendering, supplier registration, contract tracking, staff establishment validation, and ghost worker elimination through integrated HR controls.

Debt, Risk & Audit

Debt recording, servicing schedules, fiscal risk forecasting, digital audit trails, exception reporting, and comprehensive audit evidence management.

AI-Enabled Fraud Detection & Predictive Risk Analytics

AI transforms fraud detection by identifying patterns beyond predefined rules. Key capabilities include anomaly detection in payments, payroll, and procurement; vendor risk scoring through behavior and ownership analysis; duplicate invoice and suspicious bid detection; and predictive analytics flagging arrears, delays, and debt risks with automated alerts to oversight units.

Anomaly detection in payments & payroll

Vendor risk scoring & behavior analysis

Predictive analytics for fiscal risks

Brazil's Alice AI tool provides real-time fraud oversight across government contracts.

The UK deploys AI fraud risk assessment for public benefit schemes. Kenya leverages digital payment trails for fraud detection and tax compliance improvement.





Key lesson: AI effectiveness depends on quality digital records, unique identifiers, and system interoperability.

Without strong data foundations, even advanced AI cannot deliver reliable fraud detection and risk analytics.

Integration of Core PFM Systems





Core systems requiring integration: FMIS/IFMIS, e-Procurement, Payroll and HRMIS, Debt management, Revenue systems, Banking/payment gateways, and Audit tools. When procurement is visible to treasury pre-spending, payroll reconciles with approved staff, and debt servicing informs cash planning governments achieve true financial control.

Ghana: GHANEPS integration with GIFMIS

Rwanda: IFMIS and e-procurement enhancements

Estonia: X-Road interoperability model

Data Governance, Sovereignty & Cybersecurity

Data is a strategic national asset requiring robust governance frameworks. Poor data quality and weak security lead to flawed decisions, erosion of public trust, and systemic risks. As AI capabilities advance, the importance of data governance increases, shifting focus from rule-based controls to data-centric oversight. A strong foundation of data quality and digital trust is essential for AI-enabled PFM.

Data Ownership & Quality

Clear data stewardship rules, master data management, auditability standards, and national data sovereignty policies for hosting and control.

Cybersecurity Architecture

Robust security frameworks including incident response protocols, backup systems, role-based access controls, and strong identity management.

Ethical AI Governance

Accountable and transparent AI use in decision support, with safeguards for privacy, sovereignty, and responsible automation in public finance.



Leadership & Change Management

Successful PFM transformation requires clear reform vision tied to service delivery and fiscal discipline. Leadership must provide sustained sponsorship from ministers, permanent secretaries, treasury, and ICT heads. Key challenges include resistance from legacy system users, transparency fears, and digital skills gaps across finance, procurement, audit, and ICT teams. Process redesign not merely digitizing old inefficiencies is essential.

- Clear Vision & Executive Sponsorship
- Overcoming Resistance & Skills Gaps
- Rwanda's Phased IFMIS Success Model – Political Support



Implementation Roadmap

A phased approach to PFM transformation: digitise first, integrate second, apply AI third. Each phase builds upon the previous to create a robust, intelligent financial management ecosystem.



Diagnose
&
Prioritise



Build
Foundations



Digitise the
Core



Integrate
Systems

Key Success Enablers

Essential factors that determine the success of AI-enabled PFM transformation across African governments. Real transformation requires institutional adoption, process redesign, and sustained investment in skills and systems.

Political Will & Leadership

Sustained commitment from ministers, permanent secretaries, treasury and ICT heads. Clear reform vision tied to service delivery and fiscal discipline. Prioritization, sequencing, and enforcement of new processes with sustained financing.

Legal & Regulatory Frameworks

Clear legal foundations for digital records, e-procurement, cybersecurity, and data sharing. Interoperability standards and common identifiers across government. High-quality administrative data with disciplined records management.

Capacity Building & Partnerships

Professional development for finance, audit, procurement, and ICT teams. Trusted partnerships across government, academia, private sector, and development partners. Measurable milestones linked to service delivery and fiscal outcomes.

Expected Outcomes of AI-Enabled PFM

Mature AI-enabled Public Financial Management systems deliver transformative benefits across African governments. Technology enables better state capability smarter, faster, safer, and more accountable public finance systems that translate budgets into tangible results for citizens.

Fiscal Control

Stronger fiscal discipline and expenditure control with earlier detection of fraud, waste, and compliance failures through predictive analytics.

Transparency

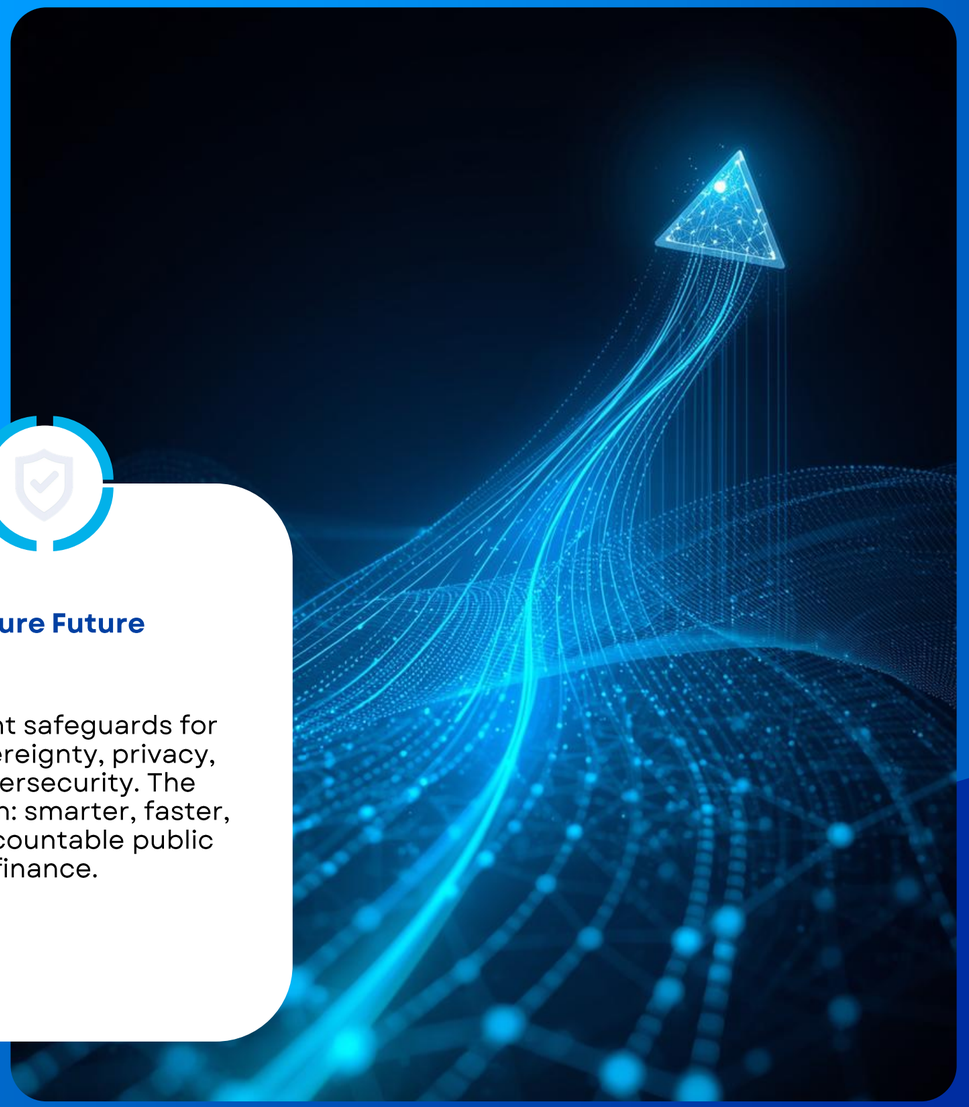
More transparent, traceable public spending with improved cash, debt, and fiscal risk management enabling faster reporting.

Public Trust

Enhanced public trust via visibility and accountability, with better service delivery through predictable, efficient fund flows.

Conclusion: AI in Public Sector Modernization

AI represents the next phase in a long public sector reform journey–from record storage to transaction processing, networked service delivery, and now predictive analytics. For African governments, responsible AI adoption must be built on strong digital foundations, integrated systems, clean data, and safeguards for sovereignty, privacy, and cybersecurity.



Reform Foundation

AI complements not replaces PFM reform. Success requires leadership aligning technology to institutional transformation and process redesign.

Digital Integration

Build on integrated systems with clean, quality data. Ensure interoperability standards and common identifiers across government platforms.

Secure Future

Implement safeguards for data sovereignty, privacy, and cybersecurity. The destination: smarter, faster, safer, accountable public finance.

Presenter Profile: Jacob K. Muimi, CISA, CISM,PMP

ICT Specialist/Head of ICT at PFMR Secretariat with over 10 years of experience leading the design, integration, and governance of Financial Management Information Systems (FMIS) and reform-driven digital platforms within the public sector. Extensive expertise in PFM ICT reforms, enterprise systems architecture, cybersecurity governance, interoperability frameworks, and automation of government financial processes. Proven track record supporting national platforms including REFORMiS, FiscalBridge (IGFR & Equalization Fund), DPMiS, CGS, and National Government Dashboard systems.

Certifications

Certified Information Systems Auditor (CISA) | Certified Information Security Manager (CISM) | Project Management Professional (PMP®)
Globally recognized certifications in IT audit, cybersecurity governance, and project leadership.

Core Expertise

a. Management Information Systems (Development and Implementation MIS)
b. PFM ICT Reform Implementation
c. Enterprise Systems Architecture
d. Cybersecurity Governance & Risk Management
e. Systems Integration & Interoperability
f. Digital Government Platforms
g. Performance Dashboards & Data Analytics
h. ICT Audit & Compliance Assurance

Experience

Over 10 years supporting PFM reforms across government institutions, leading digital governance initiatives, enterprise ICT integration, automation of financial platforms, and strengthening institutional capacity for sustainable public sector transformation.

AI for Effective PFM in Africa

Thank You
Questions & Discussion

LET'S CONNECT

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